UM-101

Digital Sphygmomanometer

Instruction Manual	Original
Manuel d'instructions	Traduction
Manual de instrucciones	Traducción
Manuale di Istruzioni	Traduzione
Bedienungsanleitung	Übersetzung
使用手冊	翻譯

1WMPD4001301B

A&D Medical

UM-101
Digital Sphygmomanometer
Instruction Manual

Contents

1. Dear Customers

Congratulations on purchasing a state-of-the-art A&D sphygmomanometer, one of the most advanced monitors available on the market today. Designed for ease of use and accuracy, the device will facilitate your daily blood pressure regimen. We recommend that you read through this manual carefully before using this device for the first time.

Applicable Patient: The device is designed for use on adults only, not newborns or infants.

Environment for Use: The device is for indoor use.

Features

Measurement

- This sphygmomanometer is designed to monitor and display the cuff pressure during cuff inflation and deflation while the healthcare provider determines the patient's blood pressure level by listening for Korotkoff sounds with a stethoscope.

Easy to Use

- This sphygmomanometer measures the pulse rate of a patient while the cuff is deflating during blood pressure measurement, and indicates the pulse rate on the LCD display.

Safety

- This sphygmomanometer is designed to measure a patient's blood pressure without the use of mercury, therefore protecting your local environment.
- An automatic quick exhaust valve is installed in the device to prevent over pressurization of 320mmHg or higher, therefore protecting the patient.

2. Preliminary Remarks

Compliance

- **Compliance with European Directive 93/42 EEC for Medical Products**
  The device conforms to the following requirements: European Directive 93/42 EEC for Medical Products; Medical Products Act; European Standards for Electrical Medical Equipment EN 6060-1 (General Safety Provisions), EN 60601-2-30 (Particular Requirements for the Safety of Automatic Cycling Indirect Blood Pressure Monitoring Equipment), EN 60601-1-2 and EN 55011 (Electromagnetic Compatibility); European Standards pertaining to Non Invasive Blood Pressure Instruments EN 1060-1(General Requirements), prEN 1060-3(Supplementary Requirements for Electromechanical Blood Pressure Measuring Systems). The above is evidenced by the CE 0123 mark of conformity accompanied by the reference number to the involved notified body.
- This device is designed to measure blood pressure and pulse rate of people for diagnosis.

Definitions

SYS	Systolic Blood Pressure
DIA	Diastolic Blood Pressure
PUL	Pulse
Exhaust	This means “releasing the cuff air as soon as possible”.
Constant exhaust	This means, “releasing the cuff air at a constant depressurization rate”.

Batteries

- Use alkaline batteries (LR6 type, AA type, Mignon) or equivalent batteries.
- Do not mix new and used batteries.
- Remove the batteries if the device will not be in use for a prolonged period of time as the batteries may leak and cause a device malfunction.

A Defective Sphygmomanometer

- Stop using the device immediately if the device does not work properly. Please attach a note with the following "Do not use this sphygmomanometer " to prevent any further use. This defective device should be stored in a safe place to avoid any misuse until it has been sent for repair.

Training

- The healthcare provider should stop using the device if there is an abnormality, such as a patient feeling excessive arm pain, and remove the cuff to protect the patient.

Repair

- Do not attempt to open the device. Contact your nearest A&D authorized dealer and they will repair or replace the device.
- Do not modify the device. It may cause accidents or damage to the device.

Blood Pressure Measurement

- This device is designed for use with adults.
- Do not use the device on patients using heart-lung support equipment.
- Do not use the device on patients in a critical condition or on ICU (intensive care unit) patients.

3. Notes for Proper Use

Storage

- Do not store the device where it could be splashed with water or other liquids. If the device is immersed by accident, it may require servicing. (DO NOT use the device before it has endured a full service.)
- Do not store the device in a high temperature or high humidity environment, or in direct sunlight.
- Do not store the device where it could be influenced by vibration or shock.
- Do not store the device in a dusty, salty or sulfuric environment.
- Do not store the device where medicines are stored, or where medicines are evaporating.

Before Use

- Make sure that the device works correctly and that measurement values are accurate.
- Make sure that the cuff and air tubes are properly connected.
- Check and maintain the cleanliness of the parts in direct contact with the patient.
- Consider using a cuff cover for sanitary measurements.
- Avoid placing the device near a strong magnetic field or static electricity.
- Avoid placing the device near high frequency surgical equipment.
- When reusing the device, confirm that the device is clean.

During Use

- ❑ This device should be used by trained professionals.
- ❑ Stop using the device immediately, if the patient feels pain during a measurement or if the device does not work properly.
- ❑ Stop using the device if you notice any abnormalities (for example; liquid inside the device) and request a full service.
- ❑ To measure blood pressure, the arm must be squeezed by the cuff hard enough to temporarily stop blood flow through the artery. This may cause pain, numbness or a temporary red mark to the arm. This condition will appear especially when measurement is repeated successively.
  Any pain, numbness, or red marks will disappear with time.

After Use

- ❑ Clean the device, cuff and accessories before any subsequent uses. Do not pull or kink the tubes. Do not use any organic solvent (for example; antiseptic solution, etc.) to clean the device.
- ❑ Press the ⏻ ON/OFF button after a measurement.
- ❑ Keep the original box for further transportation after purchasing the device.

Periodic Maintenance

- ❑ This device is a precision instrument and contains electronic circuitry. Please check all functions periodically. Contact your nearest A&D authorized dealer for official calibration/check-up, according to your local regulations.

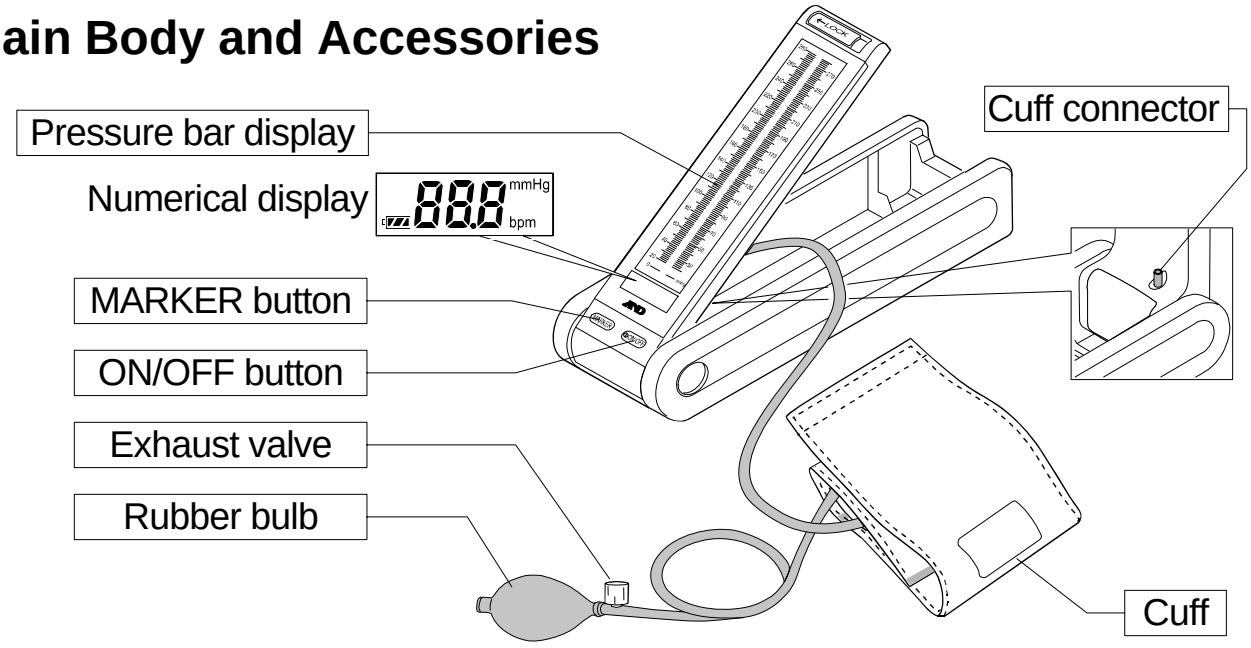
4. Contraindications

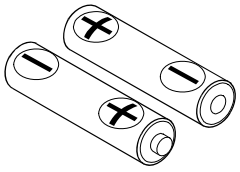
The following are precautions for proper use of the device.

- ❑ Do not apply the cuff to an arm with another medical electrical equipment attached. The equipment may not function properly.
- ❑ Do not apply the cuff on an arm with an unhealed wound.
- ❑ Do not apply the cuff on an arm receiving an intravenous drip or blood transfusion. It may cause injury or accidents.
- ❑ Do not use the device where flammable gases such as anesthetic gases are present. It may cause an explosion.
- ❑ Do not use the device in highly concentrated oxygen environments, such as a high-pressure oxygen chamber or an oxygen tent. It may cause a fire or explosion.

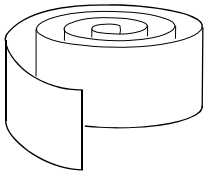
5. Parts Identification

Main Body and Accessories

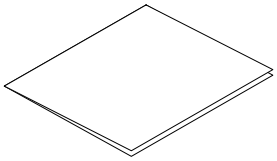




1.5V Batteries
(LR6 or AA)



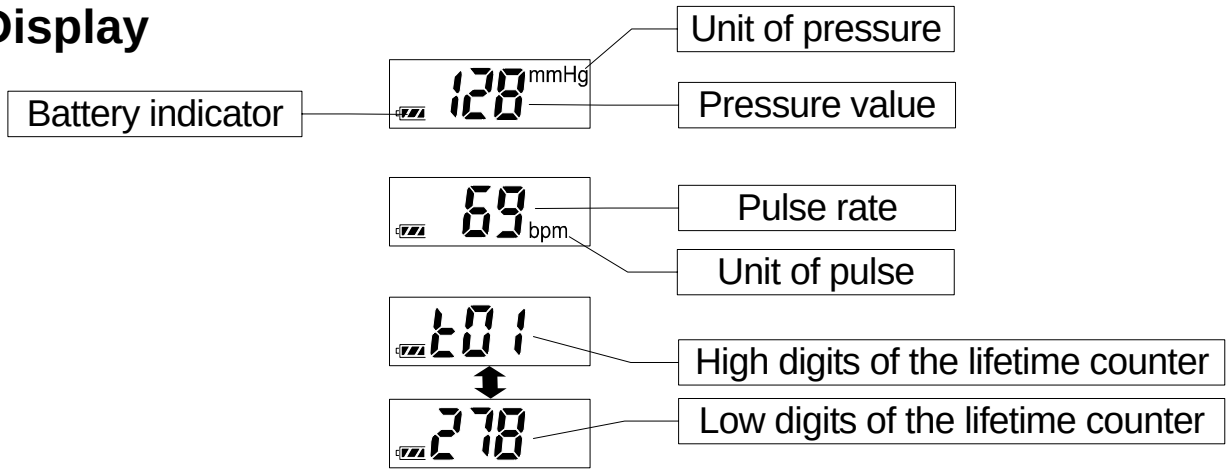
Band for attaching a stethoscope on the arm



Instruction manual

	Function
ON/OFF Button	Turns on or off the device.
MARKER button	During measurement····· Puts a marker at a pressure value After turned off ····· Indicates a lifetime counter
Numerical display	During measurement····· Indicates pressure value After exhausted air ····· Indicates pulse rate

Display

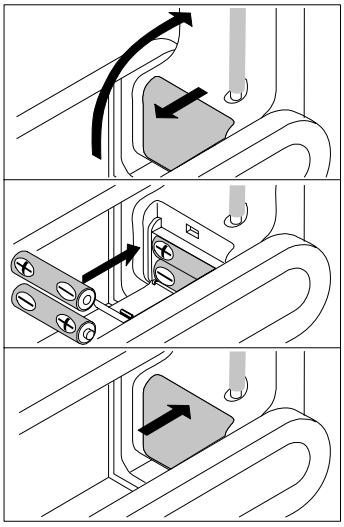


6. Symbols

Symbols	Function / Meaning	Recommended Action
⏻	Standby and Turn the device on	—
MARKER	Pressure value holding and lifetime counter	—
⊕ R6(AA) ⊖	Battery installation guide	—
SN	Serial number	—
2005	Date of manufacture	—
	Type BF: Device, cuff and tubing are designed to provide special protection against electrical shocks.	—
Full Battery	The battery power indicator during measurement.	—
Low Battery	The battery is low when it blinks.	Replace all batteries with new ones, when the indicator blinks.
Er 1	Pressure remains in the cuff.	Exhaust it with the exhaust valve.
Er2	Measurement overtime	
Er3	Device is out of order.	Send for service.
mmHg	Unit of pressure	—
bpm	Unit of pulse	—
CE 0123	EC directive medical device label	—
	WEEE label	—
	Manufacturer	—
EC REP	EU-representative	—
	Refer to instruction manual/booklet	—

7. Using the Monitor

Installing / Changing the Batteries

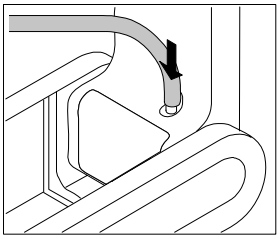


1. Remove the battery cover.
2. Insert a new set of batteries into the battery compartment as shown. Make sure the polarities (+) and (-) are correct. Use only LR6, AA or equivalent batteries.
3. Close the battery cover.

CAUTION

- ❑ Insert the batteries in the battery compartment. If not, the device will not work.
- ❑ When  (LOW BATTERY mark) blinks in the LCD display, replace all batteries with new ones. Do not mix old and new batteries. It may shorten the battery life, or cause the device to malfunction.
- ❑ Battery life varies with the ambient temperature and may be shorter at low temperatures.
- ❑ Use the specified batteries only. The batteries provided with the device are for testing the device performance and may have a limited life.
- ❑ Remove the batteries if the device will not be in use for a prolonged period of time as the batteries may leak and cause a device malfunction.

Connecting the Air Tube



Insert the air tube into the cuff connector firmly.

Selecting the Proper Cuff

Using the correct cuff size is important for accurate readings. If the cuff is not the proper size, the reading may yield an incorrect blood pressure value.

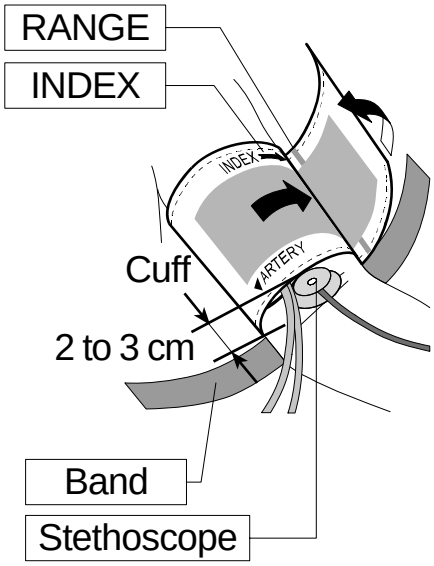
- ❑ The INDEX and RANGE markings on the cuff will indicate that you are using the proper cuff or not. (Refer to "**Attaching the Arm Cuff**" in the next section)

Arm Size	Recommended Cuff Size	Catalog Number
33 cm to 45 cm	Large cuff	CUF-UM-LA
23 cm to 33 cm	Medium cuff	CUF-UM-A
16 cm to 23 cm	Small cuff	CUF-UM-SA

Arm size: The circumference of the biceps

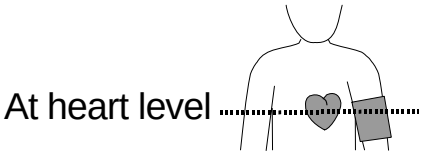
Attaching the Arm Cuff

1. Wrap the cuff around the upper arm, about 2 to 3 cm above the elbow as shown on the right. Place the cuff directly against the skin, as clothing may cause a faint pulse and could result in a measurement error.
2. Constriction of the upper arm, caused by rolling up a shirtsleeve, may interfere with accurate readings.
3. Make sure that the index points are within the range.
4. Attach a stethoscope on the arm with the accessory band.

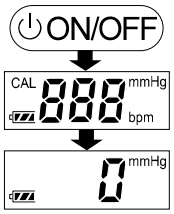


8. Measurements

1. Place the cuff on the arm (preferably the left arm). Keep the patient still during measurement.



2. Press the ⏻ ON/OFF button.
   - ❑ When the ⏻ ON/OFF button is pressed, all of the display symbols will appear for about one second.
   - ❑ When 0 starts flashing, the device is ready for measurement. If air is remaining in the cuff when the ⏻ ON/OFF button is pressed, the display will indicate an error code Er 1. Turn the device off (press the ⏻ ON/OFF button again) and turn the exhaust valve counterclockwise once to release all the air in the cuff. Then press the ⏻ ON/OFF button again to reactivate the device.



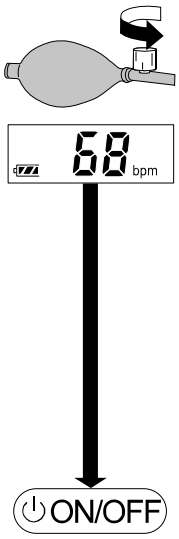
3. Place the stethoscope on the brachial artery and pressurize the cuff by squeezing the rubber bulb. (Make sure the exhaust valve is completely closed.)
   - ❑ While the cuff is inflating, the pressure bar will move and in turn the LCD will display a number indicating the pressure.
   - ❑ Inflate the cuff to 30 to 40 mmHg higher than the patient's expected systolic value.

Note: If you wish to stop inflation at any time, press either the ⏻ ON/OFF button or turn the screw of the exhaust valve to release the air.

4. When inflation is complete.
   - ❑ Turn the exhaust valve screw to release air slowly.
   - ❑ Measure the systolic pressure and the diastolic pressure by stethoscopy.

5. The pulse rate is shown on the numerical display when the measurement is complete, and meets the following conditions.
   - ❑ When you pressurize 80mmHg or higher for the measurement.
   - ❑ When the pressure drops to 20mmHg or lower.

6. Turn the exhaust valve screw counterclockwise to release all the air from the cuff.
   - ❑ If a measurement is taken with insufficient pressure, the [---] mark will be displayed. Re-pressurize the cuff to a pressure that is about 30 to 40 mmHg higher than the previous attempt.
   - ❑ An error message [Err] will be displayed if a measurement is taken with insufficient pulses or in a very noisy environment.



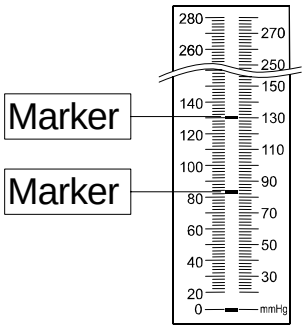
7. Press the [⏻ ON/OFF] button again to turn off the power.

Note: Model UM-101 has an automatic power-off function.
Allow at least three minutes between measurements on the same person.

9. Useful Features

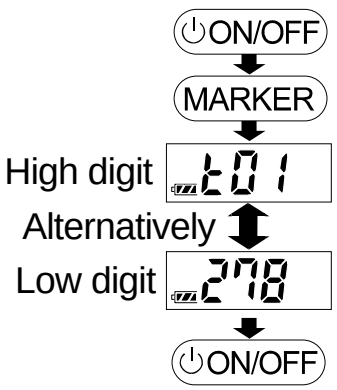
❑ Measurement with MARKER Button

You can put a marker at a certain pressure value when the [MARKER] button is pressed during the measurement process. Up to 5 markings can be shown over the range of 40mmHg.



❑ Lifetime Counter

When the [MARKER] button is pressed while the device is off, the lifetime counter is displayed.
This counter function indicates the hours the device was in use and helps to determine when maintenance is necessary. High digits and Low digits are alternatively displayed. The example indicates that the device has been in use for 1,278 hours.



10. Troubleshooting

Problem	Possible Reason	Recommended Action
Nothing appears in the display, even when the power is turned on.	Batteries are empty.	Replace all batteries with new ones.
	Battery polarities are not in the correct position.	Reinstall the batteries with the negative and positive ends matching those indicated in the battery compartment.
The device does not take a measurement. Readings are too high or too low.	The cuff is not fastened properly.	Fasten the cuff correctly.
	Patient moved the arm or body during the measurement.	Make sure the patient remains very still during the measurement.
	The cuff position is not correct.	Have the patient sit comfortably still. Ensure that the cuff is at the same level as the heart.
	—	If the patient has a very weak or irregular heart beat, the device may have difficulty in determining the blood pressure.
	—	Remove the batteries. Reinstall them properly and try the measurement again.

Note: If the recommendations above do not solve the problem, contact your nearest authorized A&D dealer. Do not attempt to open or repair this product by yourself, as any attempt to do so will render your warranty invalid.

11. Maintenance

Do not attempt to open the device as the delicate electrical components and intricate air unit inside could be damaged. If you cannot solve the problem using our troubleshooting guide, request assistance from your authorized dealer or from any A&D service group.

The device was designed and manufactured for a long service life. However it is generally recommended to have the device inspected every 2 years, to ensure proper functioning and accuracy. Please contact either your authorized dealer or A&D for maintenance.

12. Technical Data

Model	UM-101	
Measurement method	Stethoscopy with stethoscope	
Measurement range		
Numerical display	Pressure:	0 ~ 300 mmHg
	Pulse:	30 ~ 200 beats / minute
Pressure bar display	Pressure:	20 ~ 280 mmHg
Measurement accuracy		
Numerical display	Pressure:	±3 mmHg
	Pulse:	±5 %
Pressure bar display	Pressure:	±4 mmHg
Power supply	2 x 1.5 V alkaline batteries (LR6 or AA)	
Upper arm circumference	23 ~ 33 cm using the medium cuff	
Number of measurements	Approx. 2000 measurements, when AA alkaline batteries are used, with pressure value of 180 mmHg at room temperature of 23°C	
Classification	Internally powered ME equipment Continuous operation mode	
EMC	IEC 60601-1-2: 2007	
Operating conditions	+10°C to +40°C / 15%RH to 85 %RH 800 hPa to 1060 hPa	
Transport / Storage conditions	-20°C to +60°C / 10%RH to 95 %RH	
Dimensions	Approx. 96 [W] x 322 [H] x 66[D] mm	
Weight	Approx. 940 g, excluding batteries	
Applied part	Cuff Type BF 	
Useful life	Device: 5 years (when used six times a day) Cuff: 2 years (when used six times a day)	

Accessories sold separately

Cuff

Catalog Number	Cuff Size	Arm Size
CUF-UM-LA	Large cuff	33 cm to 45 cm
CUF-UM-A	Medium cuff	23 cm to 33 cm
CUF-UM-SA	Small cuff	16 cm to 23 cm

Note: Specifications are subject to change without prior notice.

EMC table information is listed on our website:

http://www.aandd.jp/products/manual/medical/emc_en.pdf

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